What is claimed is

1. A composition comprising:

a) a first fusion polypeptide comprising:

i) a first domain comprising a protein transduction moiety, the transduction moiety comprising a membrane transport function; and

ii) a second domain comprising a heterologous polypeptide;

b) a second fusion polypeptide comprising:

i) a first domain comprising a protein transduction moiety, the transduction moiety comprising a membrane transport function; and

ii) a second domain comprising a fusogenic polypeptide.

2. The composition of claim 1, wherein the protein transduction moiety is selected from the group consisting of a polypeptide comprising a herpesviral VP22 protein; a polypeptide comprising a human immunodeficiency virus (HIV) TAT protein; a polypeptide comprising a homeodomain of an Antennapedia protein (Antp HD), and functional fragments thereof.

3. The composition of claim 2, wherein a TAT protein functional fragment comprises SEQ ID NO:1 from amino acid 47-57.

4. The composition of claim 1, wherein the heterologous polypeptide is a therapeutic or diagnostic polypeptide.

5. The composition of claim 4, wherein the diagnostic polypeptide is an imaging agent.

6. The composition of claim 4, wherein the therapeutic polypeptide modulates cell proliferation.

7. The composition of claim 6, wherein the modulation inhibits cell proliferation.

8. The composition of claim 7, wherein the therapeutic agent is a suicide inhibitor or a tumor suppressor protein.

9. The composition of claim 8, wherein the suicide inhibitor is thymidine kinase.

10. The composition of claim 8, wherein the tumor suppressor protein is p53.

11. The composition of claim 6, wherein the modulation increases cell proliferation.

12. The composition of claim 11, wherein the therapeutic agent is selected from the group consisting of SV40 small T antigen, SV40 large T antigen, adenovirus E1A, papilloma virus E6, papilloma virus E7, Epstein-Barr virus, Epstein-Barr nuclear antigen-2, human T-cell leukemia virus-1 (HTLV-1), HTLV-1 tax, herpesvirus saimiri, mutant p53, myc, c-jun, c-ras, c-Ha-ras, h-ras, v-src, c-fgr, myb, c-myc, n-mye, v-myc, and Mdm2.

13. The composition of claim 1, wherein the fusogenic polypeptide is selected from the group consisting of the M2 protein of influenza A viruses; peptide analogs of the influenza virus hemagglutinin; the HEF protein of the influenza C virus; the transmembrane glycoprotein of filoviruses; the transmembrane glycoprotein of the rabies virus; the transmembrane glycoprotein (G) of the vesicular

stomatitis virus; the fusion polypeptide of the Sendai virus; the transmembrane glycoprotein of the Semliki forest virus; the fusion polypeptide of the human respiratory syncytial virus (RSV); the fusion polypeptide of the measles virus; the fusion polypeptide of the Newcastle disease virus; the fusion polypeptide of the visna virus; the fusion polypeptide of murine leukemia virus; the fusion polypeptide of the HTL virus; and the fusion polypeptide of the simian immunodeficiency virus (SIV).

14. The composition of claim 1, wherein the fusogenic polypeptide comprises a sequence selected from SEQ ID NO:2 and SEQ ID NO:3.

15. A pharmaceutical or diagnostic composition comprising the composition of claim 1.

16. A kit comprising a vessel or vessels containing

a) a first fusion polypeptide comprising:

i) a first domain comprising a protein transduction moiety, the transduction moiety comprising a membrane transport function; and

ii) a second domain comprising a heterologous polypeptide; and

b) a second fusion polypeptide comprising:

i) a first domain comprising a protein transduction moiety, the transduction moiety comprising a membrane transport function; and

ii) a second domain comprising a fusogenic polypeptide.

17. An article of manufacture comprising a vessel containing

a) a first fusion polypeptide comprising:

i) a first domain comprising a protein

transduction moiety, the transduction moiety comprising a membrane transport function; and

ii) a second domain comprising a heterologous polypeptide; and

b) a second fusion polypeptide comprising:

i) a first domain comprising a protein transduction moiety, the transduction moiety comprising a membrane transport function; and

ii) a second domain comprising a fusogenic polypeptide; or

c) packaged together, a vessel containing the polypeptide of a) and a vessel containing the polypeptide of b).

18. An article of manufacture comprising, packaged together:

a) a vessel containing the composition of claim 1; and

b) instructions for use of the composition in a therapeutic or diagnostic method.

19. An article of manufacture comprising, packaged together:

a) a vessel containing a first fusion polypeptide comprising:

i) a first domain comprising a protein transduction moiety, the transduction moiety comprising a membrane transport function; and

ii) a second domain comprising a heterologous polypeptide;

b) a vessel containing a second fusion polypeptide comprising:

i) a first domain comprising a protein transduction moiety, the transduction moiety comprising a membrane transport function; and

ii) a second domain comprising a fusogenic polypeptide; and

c) instructions for use of the polypeptides of a) and b) in a therapeutic or diagnostic method.

20. A method of introducing a heterologous polypeptide in to a target cell, the method comprising contacting the cell with the composition of claim 1.

21. A method of introducing a heterologous polypeptide into a target cell, the method comprising contacting the cell with a composition comprising:

a) a first polypeptide comprising at least one transducing domain associated with a heterologous polypeptide; and

b) a second polypeptide comprising at least one transducing domain associated with a fusogenic domain, wherein the first polypeptide and second polypeptide are co-transduced in to the cell.

22. The method of claim 21, wherein the protein transducing domain is selected from the group consisting of a polypeptide comprising a herpesviral VP22 protein; a polypeptide comprising a human immunodeficiency virus (HIV) TAT protein or a functional fragment thereof; and a polypeptide comprising a homeodomain of an Antennapedia protein (Antp HD).

23. The method of claim 22, wherein a TAT protein functional fragment comprises SEQ ID NO:1 from amino acid 47-57.

24. The method of claim 21, wherein the heterologous polypeptide is a therapeutic or diagnostic polypeptide.

25. The method of claim 24, wherein the diagnostic polypeptide is an imaging agent.

26. The method of claim 24, wherein the therapeutic polypeptide is a suicide inhibitor or a tumor suppressor protein.

27. The method of claim 26, wherein the suicide inhibitor is thymidine kinase.

28. The method of claim 21, wherein the contacting is *in vivo* or *in vitro*.

29. The composition of claim 21, wherein the fusogenic polypeptide is selected from the group consisting of the M2 protein of influenza A viruses; peptide analogs of the influenza virus hemagglutinin; the HEF protein of the influenza C virus; the transmembrane glycoprotein of filoviruses; the transmembrane glycoprotein of the rabies virus; the transmembrane glycoprotein (G) of the vesicular stomatitis virus; the fusion polypeptide of the Sendai virus; the transmembrane glycoprotein of the Semliki forest virus; the fusion polypeptide of the human respiratory syncytial virus (RSV); the fusion polypeptide of the measles virus; the fusion polypeptide of the Newcastle disease virus; the fusion polypeptide of the visna virus; the fusion polypeptide of murine leukemia virus; the fusion polypeptide of the HTL virus; and the fusion polypeptide of the simian immunodeficiency virus (SIV).

30. The composition of claim 21, wherein the fusogenic polypeptide comprises a sequence selected from SEQ ID NO:2 and SEQ ID NO:3.

31. A fusion polypeptide comprising a protein transduction domain and a fusogenic domain.

32. The fusion polypeptide of claim 31, wherein the protein transduction moiety is selected from the group consisting of a polypeptide comprising a herpesviral VP22 protein; a polypeptide comprising a human immunodeficiency virus (HIV) TAT protein; a polypeptide comprising a homeodomain of an Antennapedia protein (Antp HD), and functional fragments thereof.

33. The fusion polypeptide of claim 32, wherein a TAT protein functional fragment comprises SEQ ID NO:1 from amino acid 47-57.

34. The fusion polypeptide of claim 31, wherein the fusogenic polypeptide is selected from the group consisting of the M2 protein of influenza A viruses; peptide analogs of the influenza virus hemagglutinin; the HEF protein of the influenza C virus; the transmembrane glycoprotein of filoviruses; the transmembrane glycoprotein of the rabies virus; the transmembrane glycoprotein (G) of the vesicular stomatitis virus; the fusion polypeptide of the Sendai virus; the transmembrane glycoprotein of the Semliki forest virus; the fusion polypeptide of the human respiratory syncytial virus (RSV); the fusion polypeptide of the measles virus; the fusion polypeptide of the Newcastle disease virus; the fusion polypeptide of the visna virus; the fusion polypeptide of murine leukemia virus; the fusion polypeptide of the HTL virus; and the fusion polypeptide of the simian immunodeficiency virus (SIV).

35. The fusion polypeptide of claim 31, wherein the fusogenic polypeptide comprises a sequence selected from SEQ ID NO:2 and SEQ ID NO:3.